

Voluntary Medical Male Circumcision uptake: a concept analysis.**Prettyosa M. KUSEMWA^{1*}, Takesure TAONATESHE¹, Mathilda ZVINAVASHE¹,****Augustine NDAIMANI¹, Gladys MUGADZA¹**

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ABSTRACT

Background: Voluntary Medical Male Circumcision (VMMC) uptake is important in the prevention of female to male HIV transmission by 60%. Despite VMMC awareness activities, globally, regionally and locally VMMC uptake remains low. The term VMMC uptake remains without a classic standard definition resulting in different views about the concept. The objective of the article was to define the term uptake in relation to Voluntary Medical Male Circumcision as well as to clarify and assist to come up with standard measurement tool for the concept uptake.

Method: This concept paper used Walker & Avant Model of concept analysis (2005).

Results: Attributes of VMMC uptake includes: volunteering to get circumcised, getting circumcised, the cost of the procedure, HIV status, knowledge of voluntary medical male circumcision, positive health staff attitudes, in pain, acquiring prescription for analgesia, wound care and abstinence from sex. The proposed definition of VMMC uptake is the willingness to get

circumcised in large numbers without coercion when men and boys have adequate knowledge about Voluntary Medical Male Circumcision. The definition will assist in the development of standardised measurement tool to monitor VMMC uptake.

Conclusion: The definition of VMMC uptake will facilitate harmonization of voluntary medical male circumcision activities and enhancing clearer understanding of the concept.

Key words: Concept analysis, HIV Prevention, Uptake, Voluntary Medical Male Circumcision, Walker and Avant

1.1. INTRODUCTION

Mathematical models suggest that 570,000 HIV infections could be averted between 2011 & 2025 in Zimbabwe if the country reaches 80% voluntary medical male circumcision (VMMC) coverage among 13years to 49years male subject yet national coverage remain well below this target ,and there is need to evaluate interventions to increase the uptake (Zachary et al, 2012),.

Increasing Voluntary Medical Male Circumcision uptake programs and services reduces the incidence of HIV infection in males and females by nearly as much as expected in by some ART programs.

VMMC scaling up reduces costs of buying antiretroviral treatment. When a country has strong political leadership, country ownership, and stakeholder engagement, along with demand creation, information dissemination strategies like community mobilization and human resource development are essential in scaling up VMMC uptake, (WHO, 2012).

With increasing number of people newly infected individuals with HIV, there have been calls on the need to prioritize HIV prevention and identify new HIV prevention strategies. Male circumcision has been identified as one of the effective biomedical methods along with others that

reduce new infections. Approximately 30% of males globally are circumcised mainly for religious cultural and social reasons, (WHO, 2012). Over the years it has been observed that HIV infection is less prevalent in areas where male circumcision is common hence the need to increase VMMC uptake, (WHO, 2012).

WHO (2012) managed to define male circumcision “as the surgical removal of the foreskin” but did not define uptake in relation to Voluntary medical male circumcision. There are terms in the WHO article that were close to uptake like in this statement “public health benefits will be maximised” but was not clear in terms of VMMC uptake. Masese *et al* (2017) managed to state the importance of Voluntary medical male circumcision in relation to reduction of HIV infection by 60% while Kripke (2016) is of the same sentiments “circumcised males ages 10 -29 would avert 75% of HIV infections ..”, “.This has prompted the writing of this concept to clarify and define Uptake in relation to VMMC. This paper will clarify the area of interest, VMMC uptake and define the concept in relation to Voluntary Medical Male Circumcision. The paper will also come up with a measurement tool for the concept of interest.

1.3 Methodology

This concept paper used Walker & Avant Model of concept analysis (2005). Walker and Avant model of concept analysis was originally revised from Wilson (1969). Walker & Avant Concept analysis model evolves through eight stages which are : choosing a concept, determining the purpose of the concept analysis, identifying how the concept has been utilised, determining the defining characteristics or traits, coming up with a model scenario, defining the borderline, similar or different scenario, defining antecedents and consequences and defining empirical reference Walker and Avant (2005). This method was chosen because it clearly outlines the necessary steps to be followed for the concept of interest and is simple and is well understood.

1.4 RESULTS

We searched 20 articles using PubMed and Plos one database. Out of the 20 articles, 13 articles were used which were relevant to the concept of interest VMMC uptake. Most of the articles searched were mainly from Sub – Saharan Africa where the burden of HIV/AIDS is high. The table below summarises the Literature searched.

Table showing Results of Literature Search.

Number	Authors	Year	Sample size	Population
1	Kaufman <i>et al</i>	2016	1226 Adolescents males	Adolescent male students in Bulawayo Zimbabwe
2	Mwita Wambira <i>et al</i>	2017	10219 males	20 outreach sites N
3	Strauss et al	2014	143 boys	Adolescent boys
4	Chirau T	2012	131males	Median male circumcision
5				
6	Skolnik <i>et al</i>	2012	161 males	Medical male circumcision Lesotho
7	Vermund <i>et al</i>	2013	52500 from 13 communities	South Africa

8	Katherine et al	2016	No sample	Lilongwe Malawi
9	Price et al	2014	2350	Zimbabwe
10	Evens et al	2014	FGD8 Circumcised 8 Uncircumcised 8 Female partners 20 Community12 Health promoters12	Inyanza ,Kenya
11	Anderson & Cockcroft	2012	7464 men and females	Namibia ,Botswana ,Swaziland
12	Mapingure etal	2016	2010=2170 2013=2350 2015=3467	Zimbabwe
13	WHO	2012	No Sample	Sub Saharan countries
13	Leiby et al	2016	21 sites in Lusaka 1 site in Chongwe	Zambia

Voluntary Medical Male Circumcision was defined as the surgical removal of the foreskin in several articles includes (WHO, 2012), (Rupfutse et al, 2014), and (Strauss et al, 2014). None of the reviewed documents included the non-surgical component in the removal of the foreskin which is the prepep method. These articles went on to define uptake as scaling up and maximising.

The definition of uptake in these articles was not clear hence the purpose of this paper is to come up with a clear operational definition of uptake. Although they used related terms like “maximising” and “scaling up” to describe uptake there were no clear measurement tool of Voluntary Medical Male Circumcision hence the need to assist coming up with standardised measurement tool for VMMC uptake.

Mapingure et al, 2016 focussed on “reaching the higher hanging fruits” and the behaviour determinants by tracking VMMC uptake. The results of the study showed that VMMC knowledge increased form 58,3% in 2011 to 60,1% in 2015, and VMMC uptake increased form 11,8% in 2011 to 24,5% in 2015. Even though there was indication of increase in number of circumcisions, there was no clear measurement tool to measure uptake.

Our operational definition of Voluntary Medical Male Circumcision uptake in this paper is the willingness to get circumcised in large numbers without coercion when men and boys have adequate knowledge about Voluntary Medical Male Circumcision. This definition will try to come up with standardised measurement tool to be used to avoid biases when measuring uptake.

1.5 ANTECEDENTS.

The identified antecedents in the reviewed articles includes knowledge of VMMC, availability of transport, awareness campaigns, innovative demand creation strategies, the cost of procedure (Strauss et al, 2014) , (Rupfutse et al ,2014) and adequate commodities (International Initiative for

Impact Evaluation, 2016). The study focussed on barriers and facilitators to uptake of VMMC among adolescents in Kwazulu Natal South Africa, (Macintyre *et al*, 2014) the study focussed on attitudes, perceptions and potential uptake of VMMC among older men Turkana, Kenya.

1.6 ATTRIBUTES.

Attributes according to Walker & Avant (2005), are those traits or characteristics of a concept that are closely linked with it and will assist in differentiating a particular concept from any related concept. For the attributes to be considered vital for a particular concept, they should feature out during the interaction process and culminate in the achievement of the concept of interest.

The identified attributes of the VMMC uptake include, volunteering to get circumcised, removal of the foreskin, having adequate knowledge, attitudes of health workers, abstinence for sex, pain after circumcision, and increased number of circumcisions done, coming for an HIV test, these attributes were extracted from the following articles: (Rupfutse *et al*, 2014, WHO, 2012, Mapingure *et al*, 2016, International Initiative for Impact Evaluation, 2016, Kripke *et al*, 2016, Price *et al*, 2014). Following medical prescription after circumcision. For instance sitz baths, abstaining from sexual activities for 42 days, coming for scheduled review these are some of the attributes which precede circumcision Kaufman *et al* (2016)

1.7 CONSEQUENCES

The identified consequences of the concept includes reduction in HIV incidences by 60%, penile hygiene, protection against other sexually transmitted infections, and prevention of cervical cancer (Skolnik *et al* 2012),(Leiby *et al*, 2016),(Macintyre *et al*, 2014).

1.8 Etymology of uptake

Uptake is a Middle English verb (n.) meaning ability to understand is from the beginning of the 19th century, (Harper 2017). There might be an analogy with the later meaning that refers to a "pipe leading up from the smoke box": "capacity for understanding, perceptive power," 1816, from up (adv.) + take (v.), (Thesaurus dictionary 2010).

Definition of uptake from different authors:

Audio. English. Org dictionary (2017) define uptake as defines uptake as a noun: An act or instance of taking up; a lifting example the uptake of fertilizer by machines.

Merriam Webster (2017) states that it is a noun: understanding, comprehension quick on the uptake the second definition an act or instance of absorbing and incorporating especially into a living organism, tissue, or cell oxygen uptake. While (Macmillan dictionary, 2017) acknowledges that it is a noun and gave a phrase to explain the application of uptake; British number of people who want to do something such as use a service or study a particular subject: "there was an especially high uptake in the Business Management course". Related words be quick or slow on the uptake

British dictionary ,Collins English dictionary (2012) states that uptake is a noun and went on to define it as taking up or lifting up and the second definition as the act of accepting or taking up something on offer or available. Cambridge dictionary (2017) states that it is a noun: the rate or act of taking something in.

(Oxford dictionary, 2016) incongruent states that uptake is a noun like other dictionaries but went on to define uptake as the action of taking up or making use of something.

2.0 DISCUSSION

2.1 Model case

A model case is an ideal that encompasses all the attributes or traits of the concept of interest (Walker & Avant 2005) the following scenario of a model case is fictitious of the ideal VMMC uptake. A VMMC team X had a target of 100 circumcisions per week of target age group of 13 years to 29 years. 120 males from Nyanga urban area came to Nyanga district hospital voluntarily for circumcision. The VMC team X welcomed the clients warmly. The clients had adequate information on Voluntary Medical Male circumcision they acquired from the community mobilisers from their area and from the adverts on television the information includes the following: meaning of Voluntary medical male circumcision, effects, benefits, pain management, abstinence and wound care after the procedure. The health personnel on health education reinforced the information putting more emphasis on wound care and abstinence. They all consented for HIV testing and counselling, and all were tested. 118 were HIV negative, two were positive of the 118 two dropped out and 116 were circumcised after voluntarily signing the consent forms. Pain management medications were prescribed to all the circumcised clients following the procedure. On scheduled visits which are day two, day 7 and day 42 all were complying with the expected post care requirements; (sitz baths, abstinence from sex for 42 days).

Analysis

The case of VMMC team X has all the attributes pertaining VMMC uptake that is, men coming voluntarily medical male circumcision, possessing adequate information on voluntary medical male circumcision, willingly getting tested for HIV, getting circumcised, getting prescribed analgesia following the procedure, sex abstinence for 42 days, and complying to scheduled follow ups for wound healing (sitz baths).

2.2 Border line Case

Has some of the critical attributes for the concept of interest, but not all of them, below is an example a fictitious borderline case.

A VMMC team X has a target of 100 male circumcisions per week. The team had effective service providers, less effective mobilisers, commodity suppliers, very good VMMC infrastructure mobilisation was done but not there was no transport to ferry clients to the site where the procedure was done. Effective VMMC counselling before surgery was offered. At the end of the week the health team managed to circumcise 60 clients of the 60, 45 were within the target age group of 13years to 29years.

Analysis

The VMMC team X demonstrates some of the attributes of the concept of interest. Some very important attributes were missing hence the team could not manage to reach the set target of the week.

2.3 Contrary case

A contrary case does not portray any of the attributes in the interactional process for the concept of VMMC uptake [Walker & Avant, 2005]. The following fictitious scenario describes the contrary case of VMMC uptake.

A VMMC team X has a target of 100 circumcisions per week, the team is incomplete, to conduct any procedures, has one mobiliser who is active but not effective, no transport to ferry clients to site of VMMC services, team members had negative attitudes towards VMMC, negative information given to those clients who volunteer for the services, no adequate commodities to conduct effective procedures. By the end of the week the team reported zero circumcisions.

Analysis

All the traits or characteristics of VMMC uptake are absent hence no circumcisions were witnessed.

After critical analysis of reviewed literature, a polished standardised working definition of VMMC uptake is proposed as the willingness to get circumcised in large numbers without coercion when men and boys have adequate knowledge about Voluntary Medical Male Circumcision. Thus VMMC uptake can be measured along the identified key attributes in the definition in a continuum.

2.4 Implications of the concept VMMC uptake

After the appraisal of the literature review, there was no standardised operational definition of the concept VMMC uptake in all articles used. The definition was not clear, also there was no clear measurement tool for the concept of interest hence the need to use a refined definition stated in this article as part of tracking VMMC uptake.

In addition, we could not find a clear measurement tool in the articles used therefore we are proposing the adoption of the key attributes in the proposed definition and model case in this paper to develop a standardised monitoring tool for VMMC uptake.

Definition of VMMC uptake

The purpose of the study was to define the concept of VMMC uptake which is the willingness to get circumcised in large numbers without coercion when men and boys have adequate knowledge about Voluntary Medical Male Circumcision. The definition will assist in the development of standardised measurement tool to monitor VMMC uptake.

Conclusion

Clinicians who are involved in Voluntary Medical Male Circumcision should position themselves in a way that clients can access male circumcision services with adequate knowledge, without coercion in conducive environment. The definition presented in this article and the attributes will facilitate comprehension of VMMC uptake. It will also help to assist coming up with standardised measurement tool for VMMC uptake.

REFERENCES:

1. Audio English online dictionary. (2017). <https://www.audioenglish.org/dictionary/uptake.htm>
2. British Collins English Dictionary - Complete & Unabridged (2012) *Digital Edition* © William Collins Sons & Co. Ltd. 1979, 1986 © HarperCollins.
3. Evens, E., Lanham .M .Hart, C, Loolpapit,M.,Oguma,I, Obiero,W.(2014).*Identifying and addressing Barriers to VMMC in Nyanza Kenya among men 18 years to 25 years. A qualitative study.* <https://doi.org/10.1371/journal.pone.0098221>
4. Harper, D.(2017) .*Online Etymology dictionary.* <https://www.etymonline.com/word/uptake>
5. International Initiative for Impact Evaluation, (2016): *Impact Evaluation brief*
HIV/AIDS.aidinfo.unaids.org
6. Kaufman,.Z.A,Celles J.D.,Bhauti. K.,Hershow,R.B,Weiss H.A et al (2016).*A Sport-Based Intervention to Increase Uptake of Voluntary Medical Male Circumcision Among Adolescent Male Students: Results From the MCUTS 2 Cluster-Randomized Trial in Bulawayo, Zimbabwe.*
Journal of Acquired Immune Deficiency Syndromes (1999)
[https://www.ncbi.nlm.nih.gov/pmc/articles/72\(4\):S297-S297-S303](https://www.ncbi.nlm.nih.gov/pmc/articles/72(4):S297-S297-S303): Lippincott Williams &Wilkins.
7. Kripke, K., Chimbwandira,F.,Mwandi,Z.,Matchere,F, Schnure, M.,et al, (2017).*Voluntary Medical Male Circumcision for HIV prevention in Malawi: Modelling the Impact and Cost of*

focussing the programme by client age and

Geography.12(1):<https://doi.org/10.1371/journal.pone.0156521>

8. Leiby ,K. ,Connor ,A.,Tsague.,L.,Sapele ,L.,Kaonga ,A.,et al (2016).*The Impact of SMS based interventions on VMMC in Zambia. Journal of Acquired Immune Deficiency Syndromes* (1999):72(4). Lippincott Williams &Wilkins.
9. Macintyre, K .,Andrinopoulos K, Moses N, Bornstein M, Ochieng A, Peacock E, et al. (2014)*Attitudes, Perceptions and Potential Uptake of VMMC among older man in Turkana; Kenya using Qualitative Approach.* PLoS ONE 9(5): e83998. <https://doi.org/10.1371/journal.pone.0083998>
10. Mapingure, M.P., Tapera, O.,Munjoma ,M.,Mutedzi B,Dhodho, E.*etal.*,.(2016): “Reaching the higher Hanging Fruits”: Tracking the VMMC uptake and the behaviour determinants: Results from Multi- Year National Cross Sectional Surveys in Zimbabwe.
11. Masese ,R.J.,et al.(2017). Overcoming Barriers to uptake of VMMC in a Traditionally Circumcising Community in Machinga District. *Malawi World Journal*, (7) ,40-58.<http://doi.org/10:4236/wja . 2017.71005>
12. Price,J.E.,Phiri,L.,Mulenga,D.,Hewett,P.C.,Topp,S.M,*etal.*,.(2014). *Behaviour Change Pathways toVMMC; Narrative Interviews with Circumcision Clients in Zambia.* <https://doi.org/10.1371/journal.pone.0111602>
13. Rupfutse,M, Tshuma,C.,2 Tshimanga,M, Gombe,N., Bangure,D., and Wellington, M.,(2014). *Factors associated with VMMC uptake Mazowe, Zimbabwe.* <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4405072/>
14. Skolnik,L.,Tsui,S.,Ashengo,A.T.,Kikaya,V., Lukobho-Durrel,M.,(2014).*Cross sectional study describing motivations and barriers to VMMC in Lesotho.* Public health. <http://www.biomedcentral.com/1471-2458/14/1119>

15. Strauss ,M.,Chirawu ,P.,Rhodes B.,Mountague,.C.(2014). Barriers and facilitators to the uptake of voluntary medical male circumcision (VMMC) among adolescent boys in KwaZulu–Natal...
African Journal of AIDS Research . April 2014.
16. Thesurus online dictionary(2017).<https://www.dictionary.com/browse/uptake>
17. WHO (2012).*Voluntary Medical Male Circumcision*. Geneva :Avert.org.2017
18. Zimbabwe Demographic Health Survey (2015). *Harare: Zimbabwe National statistics Agency.dg@zimstat.co.zw*

<https://www.avert.org/professionals/hiv-programming/prevention/voluntary-medical-male-circumcision>

